

Inventory Control in a Dual Channel Supply Chain with Product Returns

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ABSTRACT

The dual channel supply chain became general business platform since the internet revolution in the past two decade. The business enterprises implement the direct sale channel to encounter to the new shopping habit of customers. The retails store channel, however, still plays an important role as the major distribution channel. These, made dual channel supply chain crucial. To combine both sale channels together, the business enterprises will face the obstacles on channels management and forced the business enterprises to invest for high performance supply chain system in order to stay competitive in the global market. The customer satisfaction has been considered in the supply chain management. The product returns policy has been adopted to increase customer satisfaction when they are going to buy the product. On one hand, the return policy is a persuasion technique in marketing strategic tool that make confident and attraction to customers buy more. On the other hand, the return policy might impact to the sale profit of the business enterprises when the number of product return is high.

This research considers inventory control in a dual channel supply chain with product returns by using stochastic model of Markov analysis. The system provides two sale channels; direct sale channel and retail store channel. The products are available in both sale channels and customers can choose their preferred channel to purchase. After product has been purchased, if the customers have intention to return product, they can return it to the channel it was bought. The objective function of the research is to find the optimal base-stock level of dual channel system with product return by maximizing the net profit of the system. This research also analyzed the impact of product returns transaction and basis parameter value involved in the research model to the optimal base-stock level and system performance.

Keyword: Supply Chain 、 Inventory Control 、 Dual Channel 、 Product Returns